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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------|
| 10/022,357 | 12/20/2001 | Kwang-Wook Kim | 101190-00022 | 3447 |
| 7590 11/26/2003 | | | | |
| ARENT FOX KINTNER PLOTKIN & KAHN, PLLC Suite 600 1050 Connecticut Avenue, N.W. Washington, DC 20036-5339 | | | EXAMINER CULBERT, ROBERTS P | |
| | | | ART UNIT 1763 | PAPER NUMBER |

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------|--|
| Office Action Summary | Application No. 10/022,357 | Applicant(s) KIM ET AL. | |
| | Examiner Roberts Culbert | Art Unit 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent No. 1,480,807 to Beer.

Beer teaches a method for manufacturing a catalytic oxide anode of RuO₂ or IrO₂ using high temperature sintering, wherein a titanium base metal is etched with hydrochloric acid (See Examples 1-7), followed by being coated with a solution of RuCl₃ or chlorides of IrO₃ in hydrochloric acid (See Examples 1-7) according to a brushing or dipping method (Page 1, Lines 46-48) and then the resulting material is dried at 80-120°C, thermally treated at 175 to 300°C, and finally sintered at 400 to 650°C. (Page 2, Lines 1-13)

Beer does not teach that the heating process is performed at 60°C for 10 min, 250-350°C for 10 min and 600-700°C for 1-2 hours.

However, changes in temperature, concentrations, or other process conditions of an old process, do not impart patentability unless the recited changes are critical, i.e., they produce a new and unexpected result. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See MPEP 2144.05.

A person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify the teachings of Beer by using different processing parameters because same were known to be cause effective variables and routine experimentation would have been expected to optimize them. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Regarding Claim 2, Beer teaches a method for manufacturing a catalytic oxide anode of RuO₂ or IrO₂ using high temperature sintering, wherein a TiO₂-screening layer is formed between a titanium support and a surface of the oxide anode (Page 3, Lines 125-127), coated with a solution of RuCl₃ or chlorides of IrO₃ in hydrochloric acid according to a brushing or dipping method and then the resulting material is dried at 80-120°C, thermally treated at 175 to 300°C, and finally sintered at 400 to 650°C, said TiO₂-screening layer serving as a valve metal oxide for preventing the activity of the anode from being lowered owing to the oxidation of a titanium base metal caused upon sintering of the anode at high temperatures and the solid diffusion of an oxide into the anode surface, said valve forming oxide being selected from the group consisting of TiO₂, SnO₂, RuO₂, and IrO₂ sintered at 450 to 550°C. (See Example 6)

Beer does not teach that the heating process is performed at 60°C for 10 min, 250-350°C for 10 min and 600-700°C for 1-2 hours.

However, changes in temperature, concentrations, or other process conditions of an old process, do not impart patentability unless the recited changes are critical, i.e., they produce a new and unexpected result. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See MPEP 2144.05.

A person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify the teachings of Beer by using different processing parameters because same were

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known to be cause effective variables and routine experimentation would have been expected to optimize them. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Beer does not explicitly teach that the purpose of the TiO₂-screening layer is to serve as a valve metal oxide for preventing the activity of the anode from being lowered owing to the oxidation of a titanium base metal caused upon sintering of the anode at high temperatures and the solid diffusion of an oxide into the anode surface.

However it may be assumed that the TiO₂ layer of Beer serves the same purpose as the claimed invention since the sintering temperature range is the same, the layer materials are the same, and the TiO₂-screening layer is formed between the titanium surface and the subsequently formed platinum metal oxide such as ruthenium oxide. (See Example 6.)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents 3,616,446; 3,718,551; 3,720,590; 3,773,554; 3,773,555; 3,869,312; 3,878,803; 3,882,002; 3,940,323; 3,948,751; 4,157,943; 4,285,798; and 4,443,317.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

R. Culbert

